

# EMERGENCY OIL STOCKS & GOVERNMENT RESPONSES TO SUPPLY DISRUPTIONS

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# APEC: Net Oil Importer as a Group

- APEC consumed around 52-53% of world oil supply in 2000. This share is projected to remain relatively stable through 2010.
- 13 Net Importers and 8 Net Exporters
- Net imports around 15 mbd in 2000, rising to over 20 mbd in 2010
- Growing APEC Oil Import Dependence rising from around 35% now to over 40% by 2010.
  - Oil import dependence of APEC Net Importers remain high: 67.0% in 1999 to 67.6% in 2010

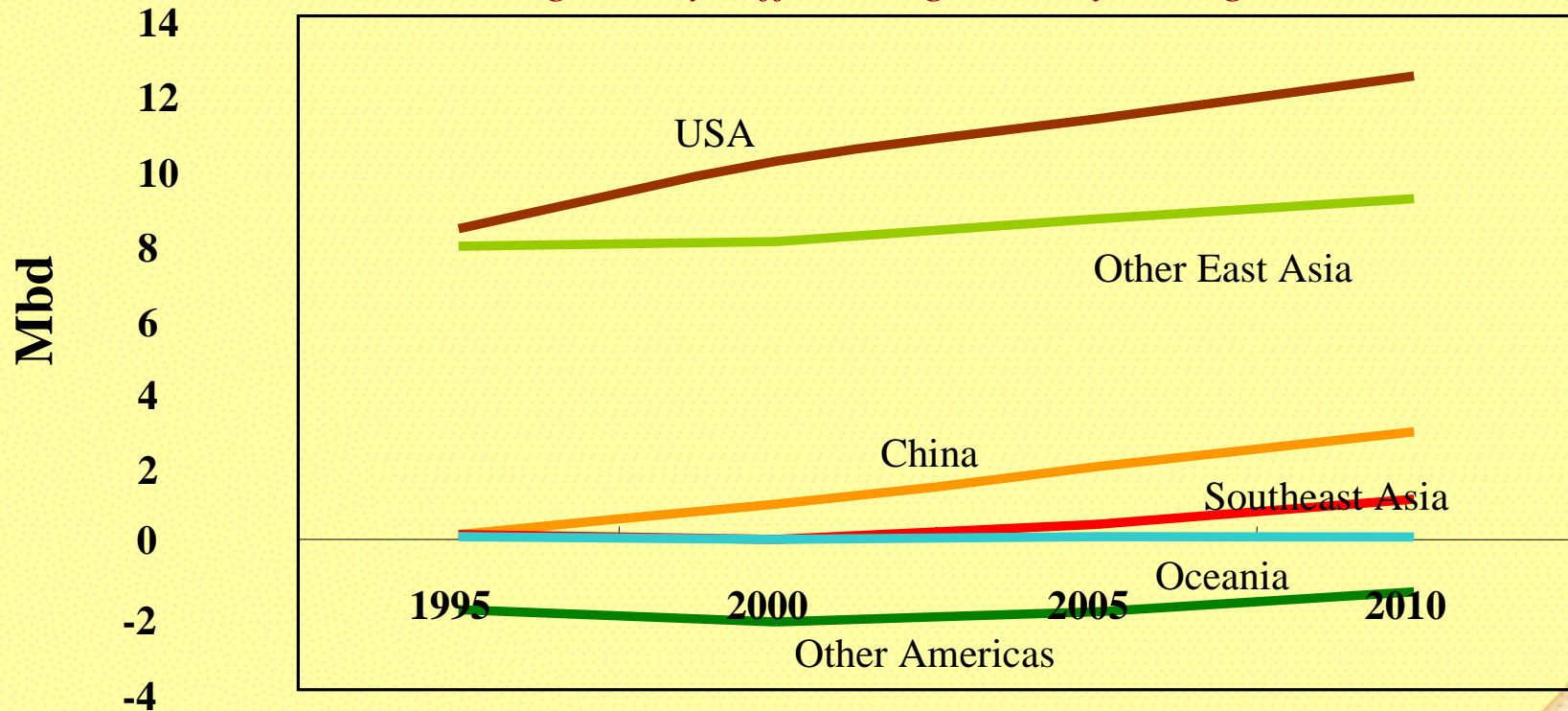
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# Oil Import Dependence (Rising in the US and Asia) by region

*Regionally different, generally rising*



USA

Other Americas

China

Other East Asia

Southeast Asia

Oceania

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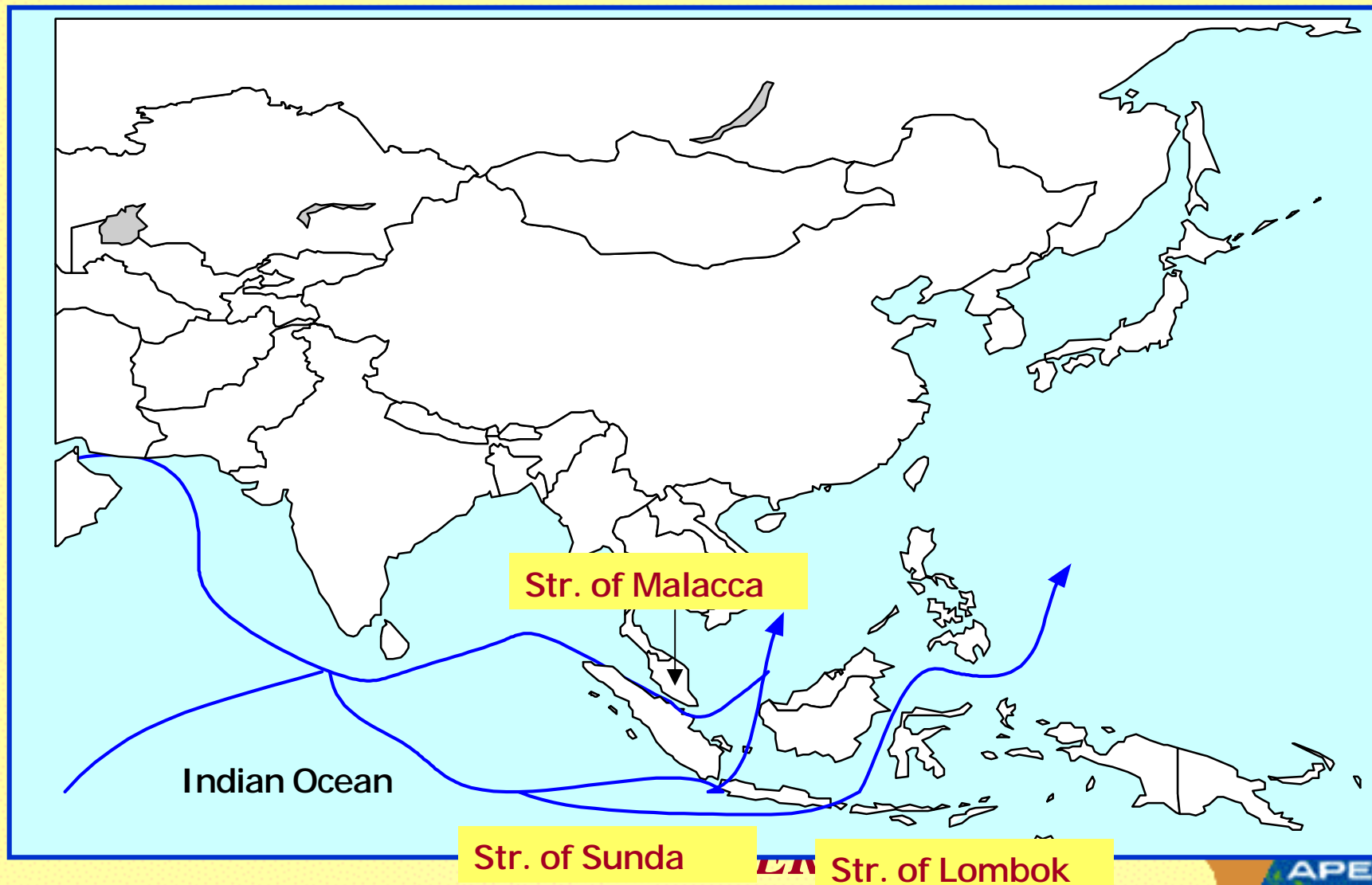


# Security of Tanker Traffic

- Oil imports increasing fastest in Asia, most of which is from the Middle East (some from Africa).
- Tankers remain the exclusive means of transport until long-haul pipelines are materialised.
- The number of tankers crossing the Indian Ocean could triple or quadruple given the trend to the use of smaller tankers.
- Most of these go through the chokepoints, the Straits of Malacca, Sunda and Lombok. Increasing LNG tankers and cargo ships will aggravate the congestion.

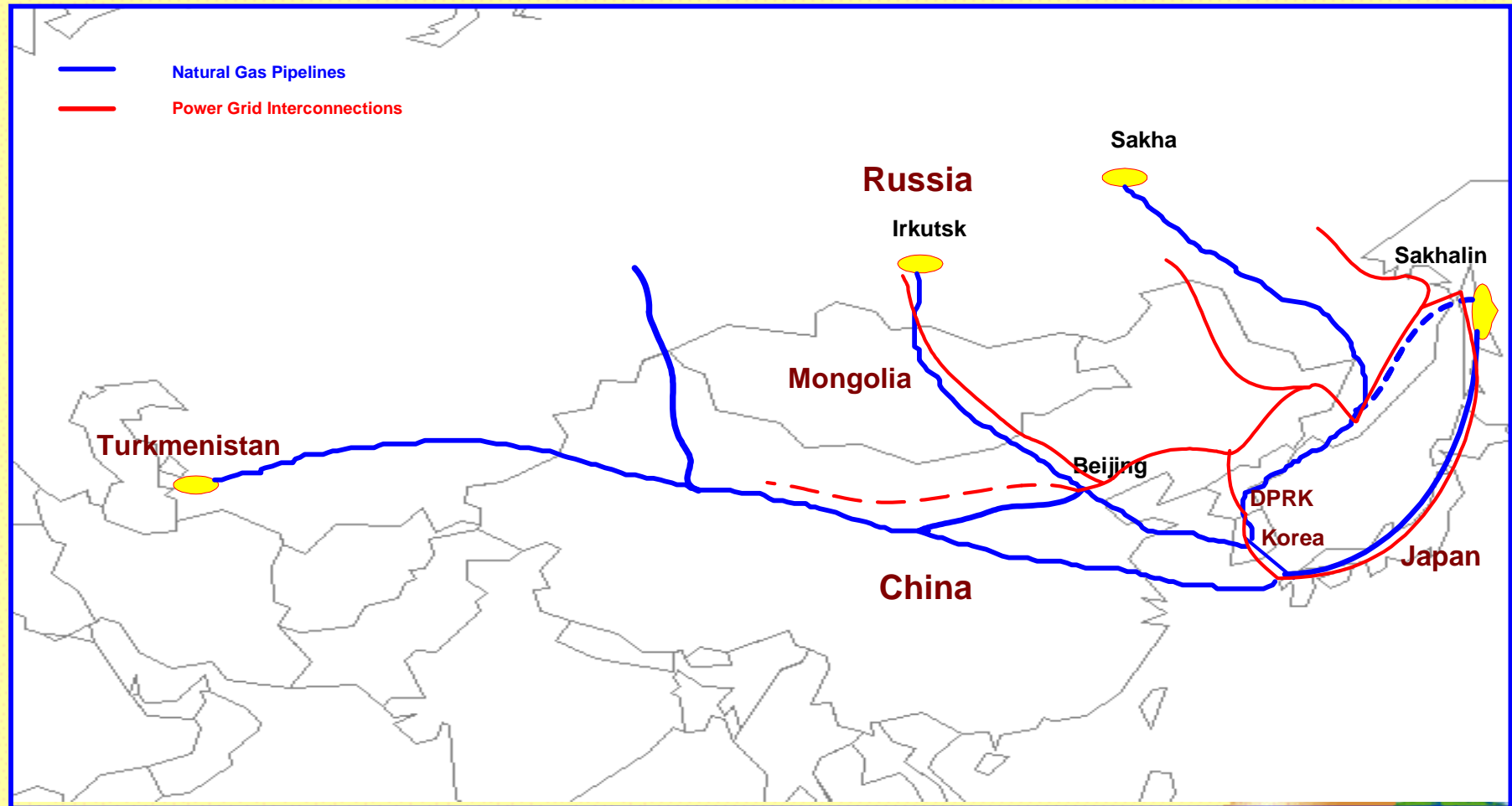


# Tanker Route



# Potential Energy Infrastructure Networks in Northeast Asia

(notice the parallel pipeline & power line)



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## The Number of Ships Passing through Malacca – Singapore Route in 1995

Type of Ship	Number of Ships (annual)	Number of Ships (daily)	Share (%)
Oil Tanker	5,265	14	13%
LNG Tanker	2,002	5	5%
Oil Product Tanker	4,766	13	11%
Others	29,755	82	71%
Total	41,788	114.5	100%

(Source) LMIS, 1995 Malacca Transit Study

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# New Types of Disruption

- New types of oil supply disruption are envisaged in addition to traditional ones;
- Cyber terrorism and use of weapons of mass destruction (WMD)
  - Cyber attacks on critical energy supply infrastructure (e.g. pipelines, terminals) could take place unnoticed.
  - Some types of weapons of mass destruction are cheap and easy to develop and deploy.

# Weakening of the Existing Response Capability

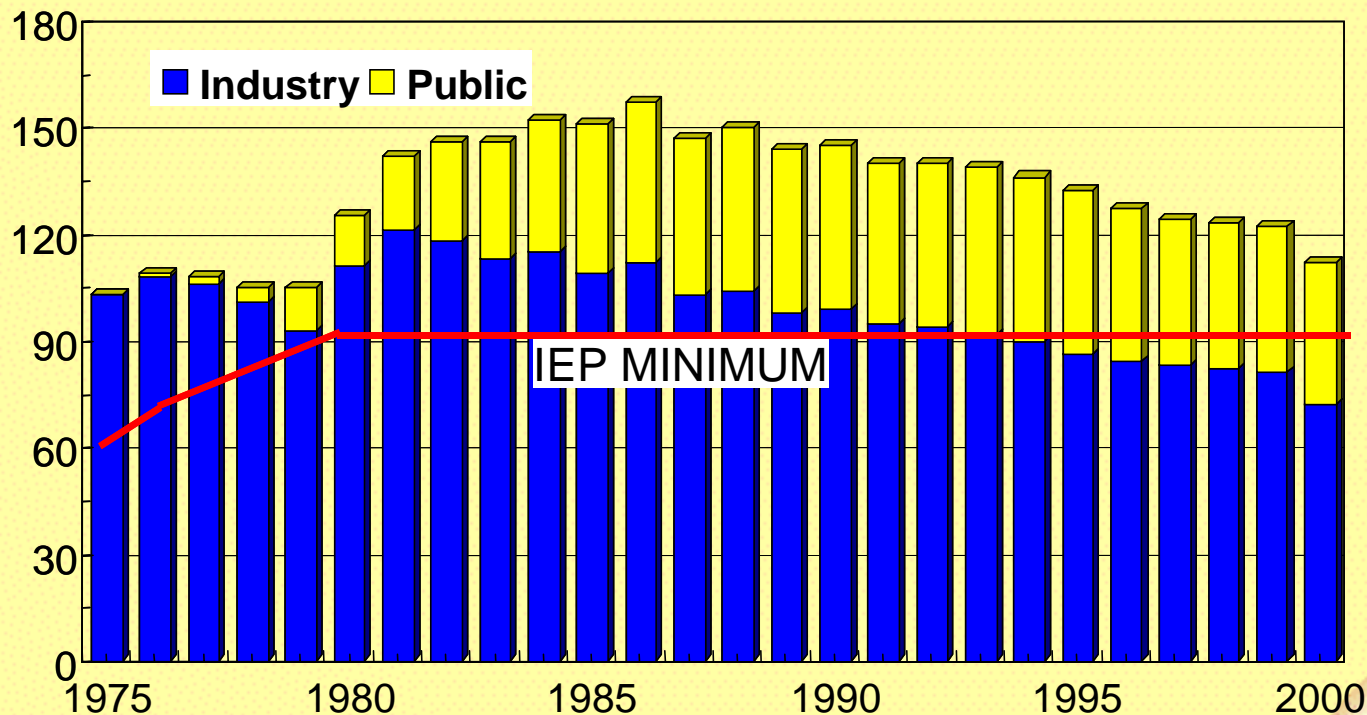
- IEA Members' stocks have progressively declined over the last decade in days of net imports (from over 150 days in 1986 to around 110 days now).
- The reduction in industry stocks accounts for this drop in IEA oil import coverage.
- OPEC's spare oil production capacity tends to be much less than in the 1980s, and is concentrated in OPEC Members in the Gulf region, notably in Saudi Arabia.
- This evidence implies a greater need for APEC economies to increase their own emergency response capabilities.

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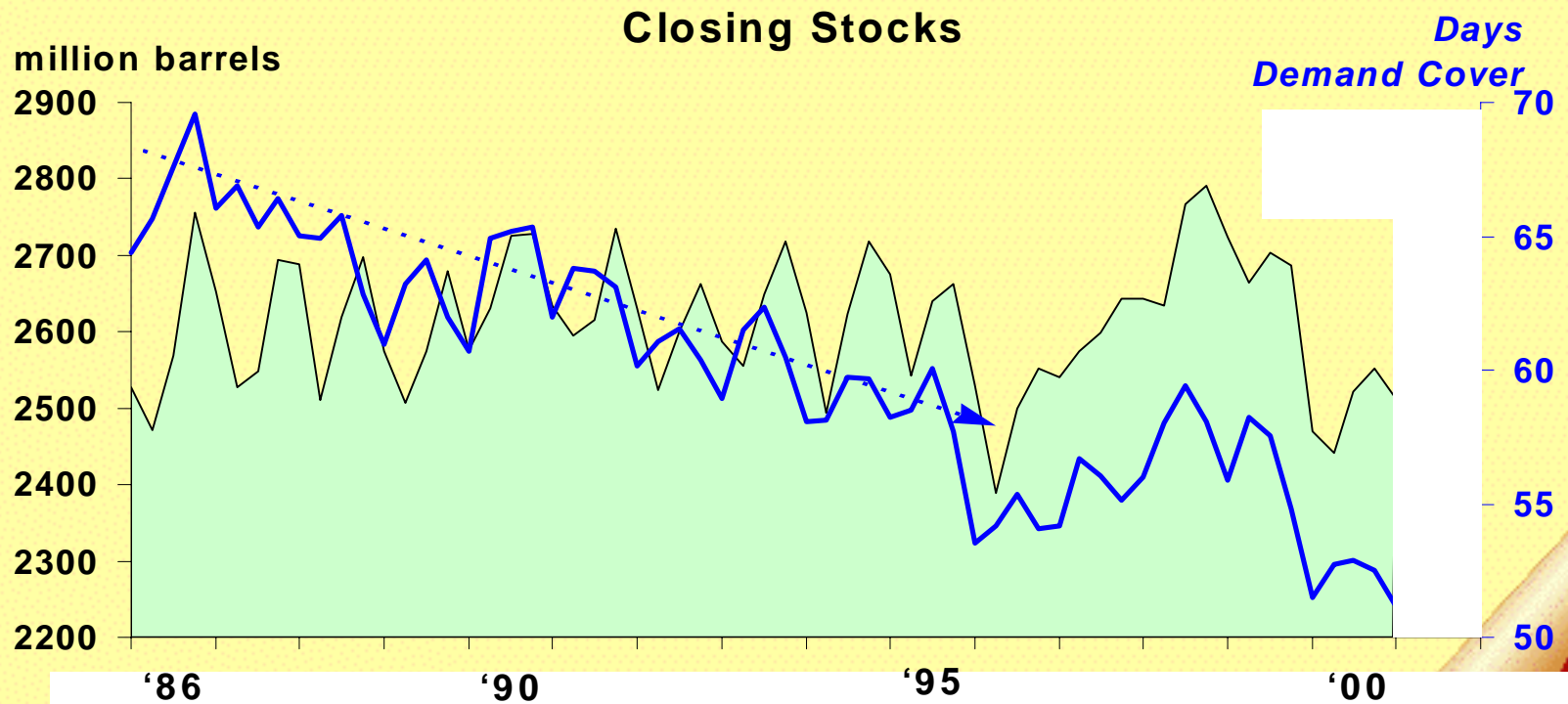


# Stocks of IEA Net Importers: Days of Net Imports



Source: IEA, 2001

# Total Industry Stocks in OECD Countries



Source: Kinder, D. 2001, The Impact of Industry Stocks and the Futures Market on Oil Market Dynamics, Shell International Petroleum Company, paper presented at IEA Millennium Conference, IEA, 21-22 March 2001.

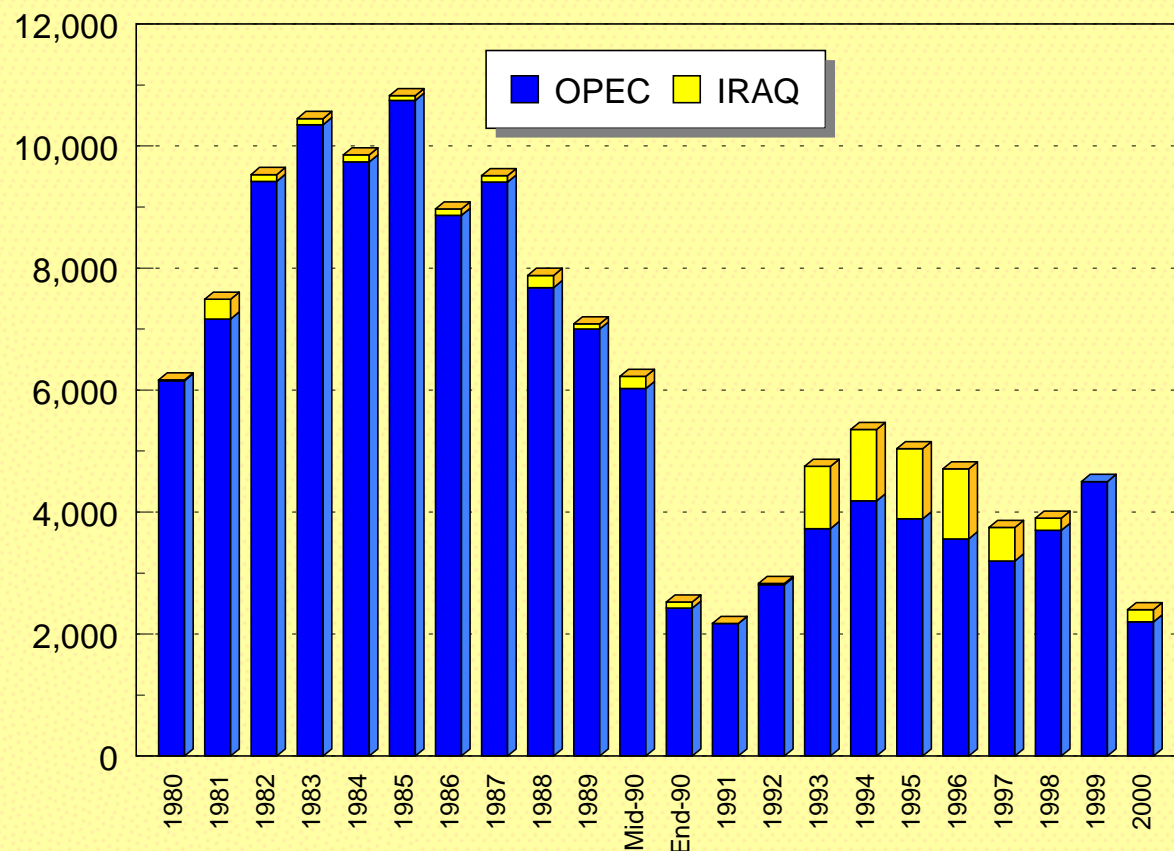
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# OPEC Spare Production Capacity (Thousand barrels/day)



Source: Jacoby, K.-D. 2001, Current IEA Response Capability, paper presented at IEA Millennium Conference, IEA, 21-22 March 2001.

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# Oil Emergency Response Measures for APEC

- *Standby Production using Spare Capacity* (by oil producers)
  - Limited to a few producers, and
  - Limited in quantity
  - Not realistic to expect private companies to hold spare capacity
- *Oil Stock Draws* (by oil consumers)
- *Demand Restraints* (by oil consumers)
  - Price effect on the demand for oil products is generally considered to be “inelastic” (Hence restraints result in considerable economic or social pain or loss)
  - Persuasion normally comes first
  - Mandatory measures may follow, (e.g. car-less days, with rationing as a last resort)

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# Response Measures con'd

- Fuel Diversification/Switching (by consumers)

- Now, limited in power sector as there are fewer oil-fired power plants.
- Gas-powered road transport may be economic for public transport and other high mileage use with minimal infrastructural issues
- Fuel flexibility is helpful

- Supply Diversification

- These may include making investments in supply (sources)
- Alternative/Emerging technologies, e.g. gas-to-liquids, alcohol blends
- This has no immediate effect in mitigating the impact of supply disruptions and so, is best thought of as a medium term strategy to enhance energy system resilience



# Oil Stock Draws

- Stock draws have proven to be effective in an emergency.
- The costs of building and maintaining emergency stocks are the largest problems.
- Joint stockpiling is a cost-effective option for the smaller Asian economies.
- Separation of emergency stocks from commercial stocks serve the purpose well.
- International co-ordination of stock draw is of critical importance.



# International Co-ordination of Emergency Responses

- Stock draws without co-ordination may well confuse the market and “fuel” speculation.
- Sharing real-time information on an emergency situation is critical for effective and coordinated actions (IEA, APEC, OLADE, etc.).
- Timely public announcements of such actions will have a calming effect on markets.
- Joint evaluation of coordinated responses after a crisis will benefit future responses.

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